1. A method comprising:

forming an arrayed waveguide grating including an output slab waveguide coupled to a pair of output waveguides coupled to a directional coupler.

2. The method of claim 1, including coupling a directional coupler to said output slab waveguide and coupling a pair of first and second output waveguides between said output slab waveguide and directional coupler.

3. The method of claim 2 including making the primary channel spacing between paired first and second waveguides coupled to the same coupler different than the secondary channel spacing between the first waveguides coupled to different but adjacent couplers.

4. The method of claim 3 including making the secondary channel spacing greater than the primary channel spacing.

5. The method of claim 1, including forming the pairs of waveguides with a length difference of approximately $(2m+1)\lambda_c/4n_{eff}$, where m is an integer, λ_c is the average center wavelength, and n_{eff} is the effective refractive index of the waveguides.

6. The method of claim 1 including forming said grating on a planar light circuit.

7. The method of claim 1 including creating output signals having a flat spectral shape.

8. An arrayed waveguide grating comprising:

an input and an output waveguide;

a waveguide array;

an output slab waveguide coupled to said array and said output waveguides; and

a directional coupler coupled to two output waveguides also coupled to said slab waveguide.

9. The grating of claim 8 wherein said output waveguides coupled to the same coupler have a length difference of approximately $(2m+1)\lambda_c/4n_{eff}$, where m is an integer, λ_c is the average center wavelength, and n_{eff} is the effective refractive index of the two successive waveguides.

10. The grating of claim 8 wherein said grating is formed on a planar light circuit.

11. The grating of claim 8 wherein said grating creates output signals having a flat spectral shape.

12. The grating of claim 8 wherein said grating is a multiplexer.

13. The grating of claim 8 wherein said grating is a demultiplexer.

14. The grating of claim 8 including a directional coupler, which is coupled by a first and a second output waveguide to said output slab waveguide.

15. The grating of claim 14 wherein a primary channel spacing between output waveguides coupled to the first directional coupler is less than a secondary channel spacing between a first output waveguide coupled to a first directional coupler and a first output waveguide coupled to a second directional coupler.

16. The grating of claim 15 wherein the primary channel spacing is about one quarter of the secondary channel spacing.

17. A method comprising:

filtering a signal using an arrayed waveguide grating; and

adjusting the spacing between successive waveguides to generate a flat spectral output wave form.

18. The method of claim 17 including forming an arrayed waveguide grating having an output waveguide coupler coupled to a pair of output waveguides having a length difference of approximately $(2m+1)\lambda_c/4n_{eff}$, where m is an integer, λ_c is the average center wavelength, and n_{eff} is the effective refractive index of the two successive waveguides.

19. The method of claim 17 including forming the grating on a planar light circuit.

20. The method of claim 17 including forming a demultiplexer.

21. The method of claim 17 including forming a multiplexer.

22. An optical filter comprising:

an input and output waveguide coupler; and

a waveguide pair coupled to said output waveguide coupler, said waveguide pair having a length difference such that a flat spectral output signal is produced.

23. The method of claim 22 including forming said pair having a length difference of approximately $(2m+1)\lambda_c/4n_{eff}$, where m is an integer, λ_c is the average

center wavelength, and n_{eff} is the effective refractive index of the two successive waveguides.

24. The filter of claim 23 wherein said filter is a demultiplexer.

25. The filter of claim 23 wherein said filter is a multiplexer.

26. The filter of claim 22 wherein said filter is formed as a planar light circuit.

27. The filter of claim 22 including a directional coupler coupled to said pair.

28. The filter of claim 22 including a plurality of waveguide pairs coupled to said output waveguide coupler.

29. A method comprising:

forming an arrayed waveguide grating including an output slab waveguide coupled to a first and second output waveguide coupled to a multi-mode interference coupler.

30. The method of claim 29 including coupling a multi-mode interference coupler to said output slab waveguides and coupling the first and second output

waveguides between said output slab waveguide and said multi-mode interference coupler.

31. The method of claim 30 including making the primary channel spacing between the first and second waveguides coupled to the same coupler different than the secondary channel spacing between the first and a third waveguide coupled to different but adjacent couplers.

32. The method of claim 31 including making the secondary channel spacing greater than the primary channel spacing.

33. An arrayed waveguide grating comprising:

a waveguide array;

an output slab waveguide coupled to said array; and

a multi-mode interference coupler coupled to a first and a second output waveguide also coupled to said slab waveguide.

34. The grating of claim 33 including a pair of multi-mode interference couplers, one coupler coupled to the first and second output waveguides, a third and fourth output waveguides, the other coupler coupled to said third and fourth output waveguides.

35. The grating of claim 34 wherein a primary channel spacing between the first and second output waveguides is less than a secondary channel spacing between the first output waveguide and the third output waveguide.